10. The article of claim 1, wherein the microfluidic channel includes a first inlet.

11. The article of claim 10, wherein the microfluidic channel includes a second inlet.

12. The article of claim 1, wherein the microfluidic channel has a substantially circular cross-section.

13. The article of claim 1, comprising a plurality of grooves or protrusions formed in the channel surface.

14. The article of claim 13, wherein each of the grooves or protrusions is parallel to each other.

15. The article of claim 14, wherein the parallel grooves or protrusions are periodically spaced along the channel surface to form a first set of parallel grooves or protrusions.

16. The article of claim 15, wherein the microfluidic channel has a width and the first set of parallel periodically-spaced grooves or protrusions traverse the width.

17. The article of claim 13, wherein the channel surface has a second set of parallel periodically-spaced grooves or protrusions traversing at least a portion of the channel surface at a second orientation.

18. The article of claim 17, wherein the second set of parallel periodically-spaced grooves or protrusions are at least partially coextensive with the first set of parallel periodically-spaced grooves or protrusions.

19. The article of claim 17, wherein the first and second sets of parallel grooves or protrusions form a repeating pattern.

20. The article of claim 1, wherein at least one groove or protrusion has at least two sections.

21. The article of claim 20, wherein at least one section is substantially linear.

22. The article of claim 21, wherein the sections intersect to form at least one chevron-shaped groove.

23. The article of claim 22, wherein a plurality of chevron-shaped grooves or protrusions are formed in the channel surface.

24. The article of claim 23, wherein the chevron-shaped grooves or protrusions are periodically spaced along the channel surface.

25. The article of claim 1, wherein a second groove or protrusion is defined in the channel surface, the second groove or protrusion having a second orientation relative to the principal direction.

26. The article of claim 1, wherein the substrate has a network of microfluidic channels fluidly connected to the microfluidic channel.

27. The article of claim 1, wherein the microfluidic channel is formed in a unitary substrate.

28. An article comprising a microfluidic channel constructed and arranged to have a fluid flowing therethrough while creating a transverse flow component in the fluid.

29. The article of claim 28, wherein the microfluidic channel is constructed and arranged so that fluid flowing therethrough has a Reynolds number that is less than about 12.

30. The article of claim 29, wherein the microfluidic channel is constructed and arranged so that fluid flowing therethrough has a Reynolds number that is less than about 5.

31. The article of claim 28, wherein the microfluidic channel has a width that is less than about 1000 μm.

32. The article of claim 28, further comprising a network of microfluidic channels fluidly connected to the microfluidic channel.

33. The article of claim 28, wherein the microfluidic channel is constructed and arranged to create at least one helical flow path in a fluid flowing therethrough.

34. The article of claim 28, wherein the microfluidic channel is constructed and arranged to have a substantially circular cross-section.

35. The article of claim 28, wherein the microfluidic channel is constructed and arranged to have a rectangular cross-section.

36. The article of claim 28, wherein the transverse flow component is created regardless of the Reynolds number of the fluid flowing in the microfluidic channel.

37. An article comprising a structure having a channel defined therein, the channel designed to have a fluid flowing therethrough in a principal direction, the channel including a channel surface having a plurality of chevron-shaped grooves or protrusions formed in at least a portion of the channel surface so that each chevron-shaped groove or protrusion has an apex that defines an angle.

38. The article of claim 37, wherein the angle of the apex is about 45-degrees.

39. The article of claim 37, wherein the channel includes a first set of chevron-shaped grooves or protrusions and a second set of chevron-shaped grooves or protrusions.

40. The article of claim 39, wherein the apex of each of the first set of chevron-shaped grooves or protrusions are aligned offset relative to the apex of each of the second set of chevron-shaped grooves or protrusions.

41. The article of claim 40, wherein the structure comprises a capillary tube.

42. The article of claim 40, wherein the structure comprises a polymer.

43. The article of claim 37, wherein the channel has a width that is less than about 1000 μm.

44. The article of claim 43, wherein the channel has a width that is less than about 200 μm.

45. The article of claim 37, wherein the channel is fluidly connected to a network of microfluidic channels.

46. The article of claim 37, wherein the chevron-shaped grooves or protrusions are periodically-spaced from each other.

47. The article of claim 37, wherein the channel has a rectangular cross-section.

48. The article of claim 37, wherein the channel has a circular cross-section.

49. The article of claim 37, wherein the channel is a microfluidic channel.

50. The article of claim 37, wherein the channel is defined on a unitary structure.

51. A structure comprising:

a first channel having a width that is less than about 1000 μm;

a second channel having a width that is less than about 1000 μm; and

a third channel having a principal direction and a width that is less than about 1000 μm, the third channel connecting the first and second channels and comprising channel surfaces having grooves or protrusions defined therein, the grooves or protrusions oriented at an angle relative to the principal direction.

52. The structure of claim 51, wherein the structure comprises a polymer.